EXPLORING AMERICAN AND CHINESE URBAN YOUTH'S VALUE ORIENTATIONS TOWARD HUMAN-NATURE RELATIONSHIP

THESIS

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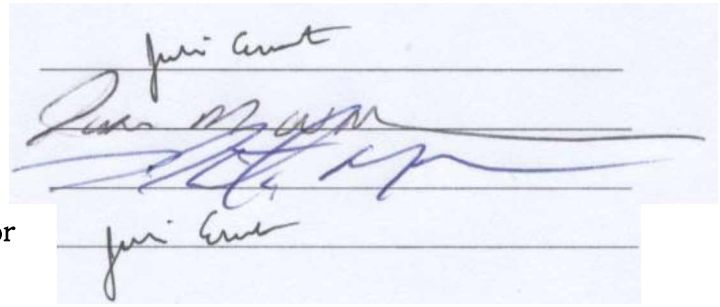

ABSTRACT

Most anthropologists agree that the relationship of a society to its environment is the first and most important challenge to a culture (Chemers & Altman, 1977). What are American and Chinese urban youths' value orientations toward the human-nature relationship? What are potential differences and similarities among their value orientations that might be useful in future research regarding culture and value orientation toward the human-nature relationship? These two questions guided the research. A self-developed human-nature relationship instrument was administered to American (n=59) and Chinese urban youths (n=51) who live in Minneapolis, the U.S. and Guangzhou, China. The dominant value orientation was examined and the qualitative data analysis provides five typologies of how urban youths' make sense of the human-nature relationship: 1) Submission; 2) Interdependence; 3) Stewardship; 4) Use; 5) Dominion. While a comparison of the qualitative result suggests Chinese and American youths have different value orientations toward human-nature relationship (interdependence in Chinese youth and stewardship in American youth), the quantitative findings suggest similar value orientation, harmony with nature. This, however, is consisting of qualitative findings as both stewardship and interdependence seem to fit with the "harmony with nature" value orientation. Recommendations for future research are discussed and the implications to environmental education are explored.

DEDICATION

Dedicated to my parents, Jianshun Li and Zhuoqin Wang,
who gave my life
and have supported me as I wander the search of my place.

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I would like to thank many people who have inspired, assisted and guided me on my graduate study journey. During an international phone call in 2009, *Dr. Ken Gilbertson* interviewed and opened a door to me for learning more about environmental education at *Center for Environmental Education*. Thanks him for providing me this precious opportunity! Thank you *Dr. Gilbertson*. The international study and work experience has influenced me in ways that I have never thought.

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had to spend on my residence in Duluth. I love you with all my heart and dedicate this thesis to the two of you.

Finally, to my husband, *Jinzhu Zhen*, not only have you encouraged me to pursue higher education when I wanted to give up and provided me sustaining support when I get through the tough days, weeks and sometime months. You convinced me that Masters Program would be fulfilling and rewarding. It was because of you I am experiencing a wonderful and amazing life. I Love You.

Now what? Life is an ADVENTURE. Let the next ADVENTURE begin!

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CHAPTER 1

INTRODUCTION

Background

What is the most vital challenge to a culture? Many anthropologists agree that the relationship of a society to its environment is the first and most important challenge to a culture (Chemers & Altman, 1977). The way in which culture answers that challenge often determines the overall style of the culture, with ramifications in every aspect of psychological and social adaption (Chemers & Altman, 1977). Some environmental theorists have suggested that developing relationships with nature could direct individuals toward a greater ethical and moral understanding of environment, as well as a connectedness to the natural world (Abram, 1996; Devall & Sessions, 1985; Leopold, 1949; Vinning, Merrick, & Price, 2008).

Many of today's environmental problems are, at least to some extent, direct or indirect consequences of people's everyday behaviors (Gardner & Stern, 2002; Nickerson, 2003). Knowing a civilization's concept of nature is tantamount to knowing how a civilization thinks and acts (Rifkin, 1983). Recently, many researchers have been focused on the relationship between value orientation and environmental behavior (Dunlap, Grieneeks, & Rokeach, 1983; Naess, 1989; Nordlund & Garvell, 2002, 2003; Karp, 1996; McCarty & Shrum, 1994, Stern, Dietz, Abel, Guagnano, & Kalof, 1999) and the importance of studying the human-nature relationship (Kahn, 1994, 1997, 1999; Kahn, Kellert, & Farnham, 2002). Values are considered to be important because they are general in nature and therefore may affect various beliefs and behaviors simultaneously (Rohan, 2000; Rokeach, 1973).

In the United States, considerable attention has been paid to the idea that people in western industrialized countries increasingly view themselves as separate from nature (Vining et al., 2008). Advances in scientific knowledge, along with the twin forces of industrialization and urbanization, have led to a disconnection of humans from their environments (Franklin, 1999). Payne (2003) found a current movement in educational pedagogy that aspired to replicate nature using virtual reality and computers rather than deal with the 'risks' of experiential field trips. Although technology should not be considered entirely negative, an American Environmental Values (EcoAmerica) survey (2006) found that 91% of 1500 survey respondents agreed that "most kids these days care about video games and portable music players than about wildlife and clean air" (p.5), providing further recognition that connections between youths and nature are continuing decline. In 2005, the Henry J. Kaiser Foundation found that young people aged 8-18 spent over 8.5 hours per day engaged in 'multi media-tasking' activities. Children are developing detrimental relationships with non-natural world items such as video games and computers, thus creating a generation that prefers indoor settings, drawing them further away from natural environmental connections (Zaradic & Pergams, 2007). It is essential to notice that a growing body of research suggests that the disconnection, nature-deficit disorder, may be associated with an epidemic of childhood obesity, childhood diabetes, behavior disorders, depression and a diminished sense of place and community (Louv, 2005; Louv, 2007).

Is China also facing the same challenge as US? According to World Urbanization Prospects 2009 (figure 1), China is now experiencing large scale urbanization and industrialization. The rural-to-urban population fraction has continued to decline

dramatically over the last two decades. China will have nearly 70% of the population living in urban areas by 2050.

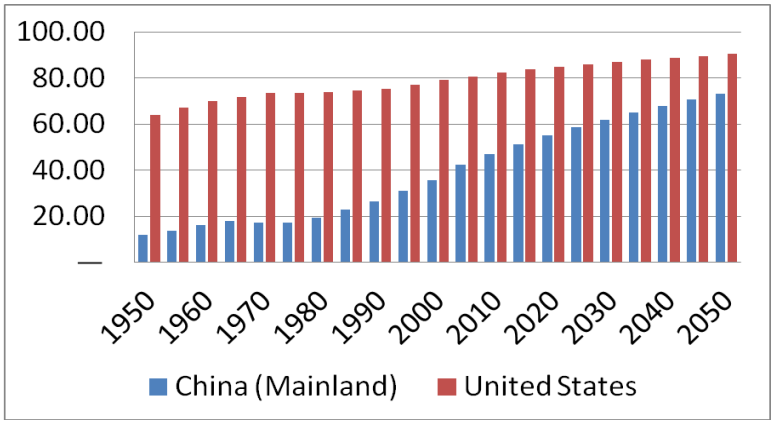


Figure 1: Percentage of Urban Population in China and US from 1950 to 2050
Source: World Urbanization Prospects (2009 version)

A web-based "Children's Connectedness with Nature" survey (2011) completed by 2560 respondents found that Nature Deficit Disorder has not yet attracted sufficient attention. The survey shows that over 90% urban youth are engaged in activities only in the community or the city parks rather than in the wilderness. Professor Yu Huang from Beijing Normal University pointed out that urban youth lack opportunities to go into the woods, which can provide the children a real and natural environment to play (Bao, 2011).

Purpose Statement

The aim of a cross-cultural study is to understand the differences between human beings who come from different cultural background, and to understand the similarities between all human beings (Hills, 2002). After four decades of environmental education effort, and amidst a general urbanization of society, what are urban youths' value orientations toward the human-nature relationship? In order to promote environmental education for younger generations without the cultural boundaries, a deeper understanding of urban youths' understanding of human-nature relationship will allow

researchers, educators and others to incorporate effective teaching strategies. The purpose of this study was to explore the value orientations toward the human-nature relationship among American and Chinese urban youth, 6th to 8th grade, through semantic and visual illustrations. The results of this investigation may allow educators, curriculum developers and educational policy makers to better understand the cross-cultural perspectives of urban youths' value orientations toward human-nature relationship and better understand the developmental tendency of their value model.

Research Questions

1) What are American and Chinese urban youths' value orientations toward the human-nature relationship?
2) What are potential differences and similarities among their value orientations that might be useful in future research regarding culture and value orientation toward the human-nature relationship?

Definitions of Terms

Environmental Education: Environmental Education is a learning process that increase people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address these challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, 1978). For the purpose of this study, Environmental Education is an interdisciplinary course to foster student's connectedness and healthy relationships with nature which encourage students to consider how their value and behaviors can influence and ultimately impact the world.

Values: Values are cognitive representations of abstract goals or abstract meaning of behaving that varies in desirability or importance (Hansla, 2011, pg. 3). To better understand the values, some of the features are given as below:

- Values are beliefs.
- Values are a motivational construct.
- Values transcend specific actions and situations.
- Values guide the selection or evaluation of actions, policies, people, and events.
- Values are ordered by importance relative to one another (Value Theory, Schwartz, 1992).

Value Orientations: Value orientations are comprised of patterns of basic beliefs relative to particular topic (e.g. environmental preservation, wildlife rights, human-nature relationship) (Fulton, Manfredo, & Lipscomb, 1996).

Value Orientations toward Human-Nature Relationship: One's value orientation toward human-nature relationship is defined as what that person believes the appropriate relationship between human and nature should be. According to Kluckhohn & Strodtbeck's Value Orientation Theory (1961), the three basic patterns of value orientations are given as:

1) Subordinate to Nature (Submissive). Individuals and groups should be prepared to submit to nature.
2) Harmony with Nature (Harmonious).Individuals and groups should work with nature to maintain harmony and balance.
3) Dominant over Nature (Mastery). Individuals and groups have a need and responsibility to attempt to control nature. (Kluckhohn & Strodtbeck's, 1961)

Urban Youth: For this study, urban youth are defined as people in the age range of 12 to 16 years old and live in an area which population density is higher than 1,000 people per square mile (386 per square kilometer).

Delimitations

This exploratory study was delimited to youth in grade 6 through 8 from one school in Minnesota, the United States and one in Guangzhou, China.

Limitations

To better understand how the different cultural background may affect the students' value orientations toward the human-nature relationship, the researcher selected samples from the same age group and from similar living environment in terms of population density and urban surroundings. However, urban youths' value orientations from Minneapolis, U.S. and Guangzhou, China may not be similar to students from other schools within these two areas, nor to youth in urban geographical areas and in other settings from the United States and China. Also, the population density in Guangzhou is much higher than it in Minneapolis. Thus, given the scope and methods of this study, data gathered cannot be generalized beyond those who participated in this study. Further, since this is an exploratory study, the self-developed instrument has not been fully tested for the validity and reliability in both languages. Consequently, the results of the study need to be interpreted cautiously.

Assumptions

The researcher is a graduate student major in environmental education and holds a Bachelor of Engineering in environmental science. She grew up in Beijing, China and served as an environmental educator at Friends of Nature for three years. Her academic

background and work experience led her to do a cross-cultural study between the United States and China. Her passion is in healthy development for urban youth healthy. She is assuming that understandings of how urban youth value the humans-nature relationship would help educators predict their future behavior and provide an effective strategy to develop well-designed educational programs that foster connectedness with the natural world. Such connectedness would eventually empower urban youth to become environmentally responsible citizens.

Significance

Many of today's environmental problems are, at least to some extent, direct or indirect consequences of people's everyday behaviors (Nordlund & Garvell, 2002). Research has shown values influence environmental behavior indirectly, via specific beliefs, attitudes and norms (Gärling et al., 2003). Values provide an economically efficient instrument for describing and explaining similarities and differences between persons, groups, nations, and cultures (Rokeach, 1973). Society's environmental orientations can shift due to the change of population growth (Cromartie et al., 1999) and changing demographics (Steel et al., 1994). Therefore, in light of the population trends toward urbanization, knowing a civilization's value orientations toward the environment is tantamount to knowing how a civilization thinks and acts (Rifkin, 1983).

CHAPTER 2

LITERATURE REVIEW

The following chapter presents a review of the literature related to the purpose of environmental education, value orientation and its relationship with environmental education, value development, value orientations toward the human-nature relationship, variables that influence the development of values, a model of the study culture and environment, and the human-nature relationship in different societies. This review builds a foundation for this exploratory study serves to justify the importance of exploring urban youths' value orientations toward the human-nature relationship with a cross-cultural perspective.

Purpose of Environmental Education

In the United States, antecedents of environmental education were nature studies, conservation education and school camping (McCrea, 2005). To better understand the functions of environmental education, knowing the aims for nature study movement, conservation education and school camping is essential as they provide a foundation for current environmental educational programs. Nature study attempted to reconcile scientific investigation with spiritual, personal experiences gained from interaction with the natural world (Roth, 1978). Led by progressive educators and naturalists such as Anna Botsford Comstock, Liberty Hyde Bailey, Louis Agassiz and Wilbur S. Jackman, nature study changed the way science was taught in schools by emphasizing learning from tangible objects, something that was embodied by the movement's mantra "study nature, not books."

Conservation education emerged as a result of the Great Depression and Dust Bowl during the 1920s and 1930s and brought awareness to the misuse of natural resources. Conservation education dealt with the natural world in a drastically different way from nature study because it focused on rigorous scientific training that helped solve social, economic, and environmental problems during this time period. School camping was exposure to the environment and use of resources outside of the classroom for educational purposes. The legacies of these antecedents are still present in the evolving arena of environmental education.

Along with the environmental education movement in the United States, internationally, environmental education gained global recognition when the UN conference on the Human Environment held in Stockholm, Sweden, in 1972, declared environmental education must be used as a tool to address global environmental problems. The United Nations Education Scientific and Cultural Organization (UNESCO) and United Nations Environment Program (UNEP) created three major declarations that have guided the course of environmental education since the early of 1970s. First, the Declaration of the United Nations Conference on the Human Environment (1972) was made up of 7 proclamations and 26 principles "to inspire and guide the peoples of the world in the preservation and enhancement of the human environment." Second, the Belgrade Charter (1975) was the outcome of the International Workshop on Environmental Education. The Belgrade Charter built upon the Stockholm Declaration and adds goals, objectives, and guiding principles of environmental education program. According to this charter,

> The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems,

> and which has the knowledge, skills attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones. (Belgrade Charter, 1975, pg.3)

The third document is the Tbilisi Declaration (1977) which noted the important role of environmental education in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities. The Tbilisi Declaration updated and clarified the Stockholm Declaration and the Belgrade Charter, further articulating goals, objectives, characteristics, and guiding principles of environmental education. According to the Tbilisi Declaration,

> The goals of environmental education are: 1) to foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas; 2) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment; 3) to create new patterns of behavior of individuals, groups, and society as a whole towards the environment. (Tbilisi Declaration, 1977, pg. 26)

Given the aim of environmental education, there is a great need for international cooperation in environmental education for all countries, especially in developing countries (Belgrade Charter, 1977).

In China, the environmental education movement is considered to be promoted by the environmental non-governmental organizations (NGOs). Because environmental NGOs are the most active and most influential force to promoting environmental education in China, it is valuable to address their major functions to better understand their role in environmental education. Some of their major functions are: fomenting environmental awareness, promoting environmental education in schools, improving

public communication in environmental protection, encouraging public participation, and conducting research on science and technology for environmental protection (Hong, Guo, & Marinova, 2006).

Compared to the United States, environmental education in China commenced several decades later. Environmental deterioration has been looming largely since 1990s. Because china's general public lacked knowledge and awareness of the environment (Hao, 2001), China's society experienced a period of awakening in terms of environmental awareness (Wang 2006), and it was against the background that China's environmental NGOs began to appear. The China Environmental Culture Promotional Association (CECPA) was established in 1992. The China Environmental Protection Foundation (CEPF) was set up in 1993. The first grass-roots environmental NGO, Friends of Nature (FON), was set up in 1994. Two years later, the Global Village environmental education center, devoted to public environmental education emerged. Although the World Wildlife Fund (WWF) was the first international environmental NGO to enter China in 1980, it was only in 1997 that it started up its environmental education projects. China's environmental education has far-reaching significance for environmental development, and raising the general public's environmental awareness will definitely improve the state of the environment in China as a whole (Li & Dong, 2010)

Environmental Education and Value Orientations

In the Tbilisi Declaration (1977), the objectives of environmental education objectives are categorized into awareness, knowledge, attitudes, skills, and participation. The role of awareness is helping social groups and individuals acquire an awareness and

sensitivity to the total environment and its allied problems. The role of knowledge is to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems. The role of attitudes is to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection. The role of skills is to help social groups and individuals acquire the skills for identifying and solving environmental problems. The role of participation is to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

One of the Tbilisi objectives, as noted previously, is to help people acquire a set of values and feelings of concern for the environment. Various studies have attempted to identify values that provide a basis for environmental attitudes and behaviors (Karp, 1996; McCarty & Shrum, 1994; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Research has also articulated three different value orientations for understanding environmental beliefs and behavior; egoistic, altruistic, and biospheric value orientations (de Groot & Steg, 2007). Egoistic value orientation focuses on maximizing individual outcomes. A social-altruistic value orientation reflects concern for the welfare of others, and a biospheric value orientation emphasizes the environment and the biosphere. Research shows that values influence environmental behavior indirectly, via behavior- specific beliefs, attitudes, and norms (Gärling et al., 2003; McCarty & Shrum, 1994; Nilsson, VonBorgstede, & Biel, 2004; Nordlund & Garvill, 2002, 2003; Poortinga, Steg, & Velk, 2004; Steg, Drijerink, & Abrahamse, 2005; Stern, 2000). Values may also affect the extent to which people are aware of environmental problems associated with their

behavior (i.e. awareness of consequences). Awareness of consequences will increase if important environmental values are threatened, and people may adjust their behavior in accordance to reduce this threat. A number of studies have validated the relationship between values and awareness of consequences (Norlund & Garvill, 2002, 2003; Schultz & Zelezny, 1998, 1999; Stern & Dietz, 1994; Stern, Dietz, Kalof, & Guagnano, 1995; Stern et al., 1999). The total number of behavior that people possess is relatively small (de Groot & Steg, 2007).Therefore, relative to other antecedents of behavior (e.g., attitudes), values provide an economically efficient instrument for describing and explaining similarities and differences between person, groups, nations, and cultures (Rokeach, 1973).

When we look at the environmental education in secondary schools, it is worth noting that this age group has the potential to become involved and prepared for understanding and tackling the environmental problems. Secondary-school students are usually receptive and strongly motivated. They are also capable of participating in an environmental education that is: 1) value-oriented; 2) community-oriented; and 3) concerned with human well-being. Environmental education programs for this age-group should, therefore, be geared to provide these dimensions (UNESCO, 1983). Hence, the study on value orientations can provide valuable information for environmental education since one of its objectives is to help people acquire a set of values and feelings of concern for the environment (Tbilisi Declaration, 1977).

Value Development

Values are deeply held beliefs that guide our behaviors and decisions. They reside deeply within the subconscious and are tightly integrated into the fabric of everyday

living. We make decisions and choose behaviors, friends, employment, and entertainment based, in large part, on our values (Lopper, 2007).

We are not born with values, so how do people develop them? According to Morris Massey (Values Development, 2012), there are three periods during which values are developed as we grow.

The *imprint* period is from birth up to the age of seven, children are like sponges, absorbing everything around them and accepting much of it as true, especially when it comes from their parents. The confusion and blind belief of this period can also lead to the early formation of trauma and other deep problems. The critical thing during this period is for children to learn a sense of right and wrong, good and bad.

Between the ages of eight and thirteen is the *modeling* period. At this stage, youth often copy their parents, but also other people. Rather than blind acceptance, they are trying on things, like suit of clothes, to see how they feel. They may be impressed with religion, at this stage. They may also be particularly influenced by their teachers.

The *socialization* period is between 13 and 21. People are largely influenced by their peers. As they develop as individuals, they naturally turn to people who seem more like them. Other influences at these ages include the media, especially those parts which seem to resonate with the values of their peer groups.

Now that we discussed the development of value, research has identified a typology of nine basic values of nature through Kellert's over twenty years of study (Kellert, 1996; see Table 1).

Value Orientations toward Nature and toward the Human-Nature Relationship

Based on the work of Kellert (1996), there are nine basic values toward nature. The *utilitarian* value reflects the natural world as a material and commodity attraction of the natural world. Several advantages of this value include physical and material security, self-confidence and self-esteem through demonstrating craft and skill in nature, and recognition of human physical dependence on natural systems and processes.

The *naturalist* value expresses the desire for close contact and immersion in nature. Functional benefits stemming from this value include inclinations for exploration, discovery, curiosity, inquisitiveness, and imagination, enhanced self-confidence and self-esteem by demonstrating competence and adaptability in nature, and greater calm and coping capacities through heightened temporal awareness and spatial involvement.

The *ecologistic-scientific* value emphasizes the empirical and systematic study and understanding of nature. Functional advantages of developing this value include intellectual competence, critical thinking, problem-solving abilities, enhanced capacities for empirical observation and analysis, and respect and appreciation for natural process and diversity.

The *aesthetic* value reflects the physical attraction and appeal of nature. Its development is viewed as instrumental in a child's emerging capacity for perceiving and recognizing order and organization, for developing ideas of harmony, balance, and symmetry, and for evoking and stimulating curiosity, imagination, and discovery.

The *symbolic* value indicates nature's role in shaping and assisting human communication and thought. Adaptive benefits of this value include classifying and labeling instrumental abilities in language and counting, resolution of difficult aspects of

psychosocial development through story and fantasy, and enhanced communication and discourse through the use of imagery and symbol.

The *humanistic* value emphasizes strong affection and emotional attachment for nature. Bonding with elements of the natural world is viewed as instrumental in developing intimacy, companionship, trust, capacities for social relationship, and affiliation and in enhancing self-confidence and self-esteem through giving, receiving, and sharing affection.

The *moralistic* value reflects an ethical and spiritual affinity for nature. Adaptive benefits associated with the formation of this value include a sense of underlying meaning, order, and purpose, the inclination to protect and treat nature with kindness and respect, and enhanced sociability from shared moral and spiritual conviction.

The *dominionistic* value reflects the urge to master and control nature. Adaptive benefits associated with this value include safety and protection, independence and autonomy, the urge to explore and confront the unknown, and the willingness to take risks, be resourceful, and show courage.

Finally, a *negativistic* value reflects the avoidance, fear, and rejection of nature. Functional and adaptive benefits of this value include avoiding harm and injury, minimizing risk and uncertainty, and respect and awe of nature through recognizing its power to humble and destroy.

Table 1: A typology of values of nature

Value	**Definition**
Utilitarian	Nature as a source of material and physical world
Naturalistic	Exploration and discovery of nature
Ecologistic-Scientific	Knowledge and understanding of nature
Aesthetic	Physical attraction and appeal of nature
Symbolic	Nature as a source of language and imagination
Humanistic	Emotional bonding with nature
Moralistic	Ethical and spiritual relation to nature
Dominiomistic	Mastery and control of nature
Negativistic	Fear and aversion of nature

Source: Kellert 1996, 38

It is important to note that these different value orientations toward nature are not mutually exclusive. Research indicated that individuals may exhibit a dominant orientation, while also expressing sentiments reflecting other orientations (Hunter and Brehm, 2004). Although Kellert's study provided the strong foundation for value orientation toward nature, the significance of this study is mainly about value orientation toward the human-nature relationship which will focus on how urban youths' think the appropriate relationship should be, not only about nature itself.

One important study concerning value orientations toward human-nature relationship is based on Kluckhohn & Strodtbeck's Value Orientation Theory (1961). They proposed a general categorization of three basic value orientation patterns. The first pattern is *subordinate to nature (submissive)* which means that individuals and groups should be prepared to submit to nature. The second pattern is *harmony with nature (harmonious)* which says that individuals and groups should work with nature to maintain

harmony and balance. The third pattern is dominant over nature (mastery) which states that Individuals and groups have a need and responsibility to attempt to control nature.

Variables that Influence the Development of Environmental Values

Based on his typology, Kellert investigated a wide range of differences in values toward nature when considers age, culture, education, income, ethnicity, gender, and place of residence (urban/rural). He found that age and culture are two variables influential on the development of values toward nature. Besides these two variables, other research has suggested that the urban characteristics can be another important factor to influence the people's value orientations (Zube and Pitt, 1981; Schroeder, 1983; Kaplan and Talbot, 1987).

In terms age, for most children, the values of nature prominently develop at distinctive ages or stages (Kellert, 1996; Kellert & Westervelt, 1983). This typical developmental process does not suggest the absence or irrelevance of values at other times in a child's life, but rather suggests periods when particular values form and become manifest.

The first stage in the development of children's values of nature occurs between three and six years of age, emphasizing the formation of utilitarian, dominionistic, and negativistic perspectives of the natural world. This stage involves a primary emphasis on satisfying the child's material and physical needs, avoiding threat and danger, and achieving feelings of control, comfort, and security.

The second developmental period in values of nature occurs during middle childhood from roughly 6 to12 years of age. Middle childhood is a time when humanistic, symbolic, aesthetic, and knowledge components of the scientific value develop most

rapidly, while utilitarian, negativistic, and dominionistic perspectives diminish in importance. Children at this age become more comfortable, familiar, and appreciative of other creatures and natural settings, although often in relative proximity to the home rather than in pristine or wild areas. Most important, this is a time of greatly expanded interest, curiosity, and capacity for assimilating knowledge and understanding of the natural world. Rapid cognitive and intellectual growth occurs including many critical thinking and problem-solving skills achieved through interaction and coping in the nonhuman environment.

A third and final stage in the development of values of nature occurs between 13 and 17 years of age. This period witnesses a rapid and pronounced maturation of more abstract, conceptual, and ethical reasoning about the natural world—in the terms of the values typology, a significant expansion in moralistic, naturalistic, and ecological components of the scientific values of nature. Adolescence is a time when children become cognizant and appreciative of larger spatial and temporal scales (such as ecosystems, landscapes, and evolutionary processes) that are difficult to visualize but indicative of vital human dependencies on natural systems. Adolescent children also reveal a more focused and conceptually complex understanding of ethical responsibilities for nature, including morally acceptable and legitimate treatment and behavior.

In terms of culture, Kellert (1996) considers whether perspectives of the natural world constitute relative expressions of the human condition, or whether there are "only a limited number of ways people can value the living world in a healthy, functional, and sustainable manner" (p. 132). Kellert embarked on a series of cross-cultural studies to investigate this issue. In his research in Japan, for example, Kellert found that in

comparison to American populations, the Japanese scored high on a dominionistic value of nature and wildlife. That is, as a whole, the Japanese often sought to manipulate and control nature, and to cultivate preferred natural elements. Thus traditional Japanese "nature appreciation activities—bonsai, haiku, flower arranging, the tea ceremony, rock gardening—reflect a refined appreciation of nature, even at times its veneration, but also a belief that wilderness requires the creative hand and eyes to achieve its perfection" (Kellert 1996, p139). Concordantly, Kellert found that the Japanese people lacked interest in wild nature and ecological processes, and demonstrated limited support for wildlife conservation and protection. In another contrast to the Japanese, Germans demonstrated more pronounced moralistic and ecologistic values, and a greater willingness to subordinate practical needs to maintain pristine nature and protect wildlife. Germans also appeared to romanticize wild nature, stressing its ennobling qualities while having few direct experiences with it, mostly in recreational settings. In short, cross-cultural variability emerged in values of nature and its conservation.

Although culture may play a role in influencing the development of value orientations, some studies showed even within the same culture, value orientations are not always consistent. A few of studies reported differences in natural environment preferences related to ethnic and/or urban background variables (Zube and Pitt, 1981; Schroeder, 1983; Kaplan and Talbot, 1987). While high agreement has been found among observers (Coughlin and Goldstein, 1970; Zube et al., 1975; Daniel and Boster, 1976), substantial differences may occur among members of the same culture, those in roughly the same age range, and those sharing other background characteristics. These

differences are attributable to professional background and/or vocational interests related to the environment.

A Model of the Study of Culture and Environment

In the *Handbook of Cross-cultural Psychology* (1977), Martin M. Chemers and Irwin Altman premised that many anthropologists agree that the relationship of a society to its environment is the first and most important challenge to a culture. The study of cultural variables in environment and behavior relationships affords the investigator a special vantage point. The way in which a culture answers that challenge often determines the overall style of the culture, with ramifications in every aspect of psychological and social adaptation. A culture's reaction to its physical environment will in turn affect that environment. To conceptualize this complex, interactive set of relationships, a model adapted from Chemers and Altman (1977) is presented here. It is a framework of relevant variables and their approximate relationships that aids in the thinking about this problem.

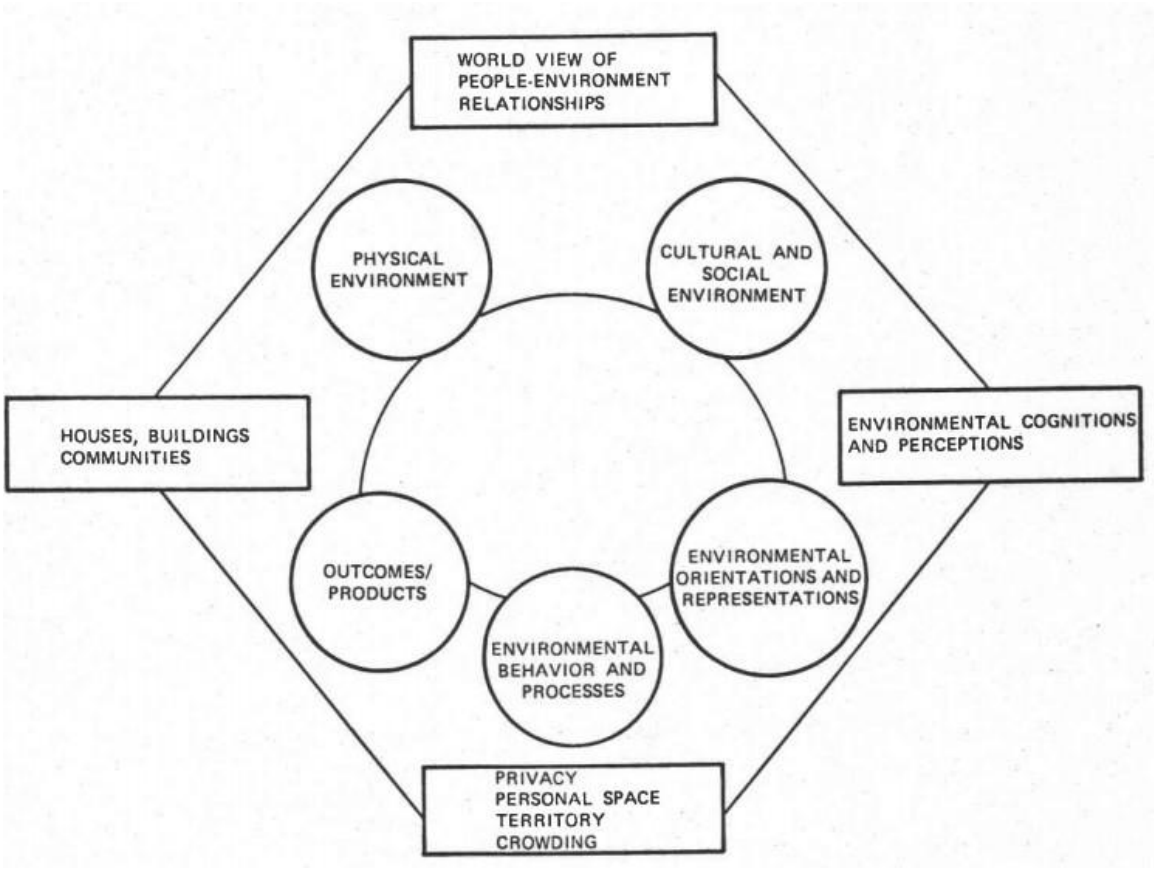


Figure 2: A Framework of culture-environment relationships

The idea of framework comes from a "social systems" orientation, which implies several things. First, it suggests that several classes of variables relate to the issue of culture and environment, such as those in the inner ring of Figure 2: physical environment, culture, environmental orientations and representations, environmental behaviors and processes, and outcomes--products of behavior. The physical environment refers to features of nature and climate, terrain and geographic features, flora and fauna. The cultural/social environment refers to all aspects of culture such as socialization processes, norms, customs, and values. Environmental orientations and representations refer to how people classify the environment—the perceptual and cognitive beliefs and differentiations they make about environments. Environmental behavior and processes

include how people use the environment in the course of social relationships. Outcomes/products of behavior include the results of people's actions, such as the built environment of homes, communities, and cities, and modifications of the natural environment such as farms, dams, and climate change.

The outer ring of Figure 2 contains extensions of the inner ring; the outer-ring variables are assumed to result from the action of various combinations of inner-ring variables. Thus, physical environment, culture etc., can cumulate to affect differences in world views or general approaches to the physical environment. For example, several writers have contrasted philosophical and value orientations to the environment by different cultures, which derive from a complex set of variables. Another result of the operation of various combinations of inner-ring variables concerns cognitions and perceptions about environments in different cultures. Still another topic concerns ways in which privacy, territory, personal space, and crowding occur in environmental products—homes, cities and communities—which result from complex combinations of inner- and outer- ring variables.

Another feature of a social systems approach is that simple linear cause-effect relationships are not always clearly discernible, since every variable can theoretically serve in an independent of dependent role. For example, it is often implied that the physical environment is primarily an independent variable and affects culture or other variables in a one-way, linear fashion. While it is true that environmental factors such as terrain, climate, and temperature may play an important role, it is also the case that the reverse can occur, with cultural practices, such as the establishment of cities can alter the

environment drastically. Thus, with any part of the figure there are multiple directions of causation.

A related feature of a systems orientation is that interventions in any part can reverberate throughout the system. Thus, cultural factors can affect any other set of variables, and vice versa. Also, any factor on the circle may be an accumulation of effects from other variables. Thus, environmental behaviors and processes may be a cumulative result of perceptions and cognitions, cultural factors, environmental factors, and outcome of earlier behaviors (Chemers and Altman, 1977)

Human-Nature Relationship in Different Human Societies throughout History

The following discussion provides a brief description of five stages of human societies categorized by humans' main beliefs and attitudes toward nature and wildlife and addresses how the value orientation' influence the human society and wildlife diversity. The five stages of human societies are categorized as: 1) Hunter-gatherer societies; 2) Early Agrarian Societies; 3) Later Agrarian Societies; 4) Early Industrial Societies; 5) Late Industrial Societies. This way of organizing and describing human societies comes from a subdiscipline of anthropology called Human Ecology, which seeks to understand humans by how they interact with natural world and with each other in order to survive (Richerson et al., 1996). Understanding the history may provide some clues about how our global culture needs to change if it is to create a sustainable world in the future. The descriptions include the characteristics, values orientations toward nature, and the influence on natural ecosystems in each society.

Hunter-gatherer societies obtain their food directly from "natural" ecosystems, by hunting wild animals and collecting wild plants (Richerson et al., 1996). The direct

dependence of hunter gathers on natural system lead to peoples commonly view themselves as inseparable from the natural ecosystems and wildlife around them (Gottleib, 1996; Wilber, 2000). Overall, hunter-gatherer societies are generally regarded as the best of all types of societies at coexisting with natural wildlife populations, because human population densities tend to be low and because this way of getting food involves the least manipulation of natural ecosystems. It has been suggested that the ability of hunter-gatherer societies to coexist with nature is attributable to their magical, reverent attitude toward nature (Gottleib, 1996). However, alternative arguments assert that hunter-gatherer had relatively small impacts on natural ecosystems simply because they did not have the technologies to further manipulate nature, or the population densities that require such manipulation (Wilber, 1996).

Early Agrarian Societies obtain food not just by foraging in natural ecosystems, but also by planting species that are important food items and/or raising livestock. Those early agrarian societies that focus on planting are called horticultural societies, whereas those that focus on livestock as the primary food source are called herding or pastoralist societies (Richerson et al., 1996). The gods and goddesses of early agrarian societies begin to take on a human face rather than animal face, compared to those of hunter-gatherer societies. A common religious theme in early agrarian cultures was the need to makes sacrifices to gods to incur their favor and ensure continued bounty (Wilber, 2000). Because their mode of procuring food involves manipulation of natural ecosystems, early agrarian societies tend to have greater negative impacts on wildlife. Denser human settlements may over-exploit wildlife in the surrounding wild areas, even if they are not directly manipulating the habitat (Orland, 2004).

As agrarian societies evolve, techniques for planning and harvesting become more technologically advanced and more efficient (Richerson et al., 1996). *Late Agrarian Societies* largely rely upon controlling and manipulating ecosystems to produce food, rather than on interacting with nature. The god of divinity of agrarian religions is often an abstract entity, not something material, and generally separate from nature (Wilber 2000). The wilderness was often considered a bad, evil place, and taming wilderness for farms and killing wild animals was as much a moral act as an economically benefit one (Snyder, 1990). The impacts of agrarian societies on wildlife and natural ecosystems can be quite considerable, which is not surprising given the high population densities of such societies and their increasingly potent technology for altering nature (Orland, 2004). For example, North American and Asia has been completely modified for human food and production. The high population densities of agrarian societies have high demands for firewood and timber, so it is not uncommon to see deforestation for firewood.

The invention of steam engines and other machines to perform physical labor began the *Early Industrial Societies* (Richerson et al., 1996). Some of these technologies allowed for yet for more urbanization and professional specialization. Many people in early industrial societies make their livelihood producing manufactured goods, often in an urban center. It is quite possible for a person in an industrial society to live their entire life and have little or no direct contact with either natural or agricultural ecosystems (Orland, 2004). The new market-based industrial economy viewed nature as goods to be sold on the open market. The result was the rapid plundering of wildlife by market-hunting (Warren, 2003). However, the rational, scientific view of nature also arose during this area, many naturalists who painstakingly collected and documented the diversity of

the Earth's species, which helped people to develop an appreciation for the wonder of the natural world (warren, 2003). For example, Yellowstone National Park and the National Park Service were established during the early industrial era of North America. The influence of early industrial economies on nature and wildlife is considerable. Increasingly powerful technologies allowed for the exploitation of wildlife populations that had hitherto been protected because or remoteness or difficulty of hunting and fishing. For example, the railroad brought numerous people to the Great Plains, and harvesting of buffalo rapidly drove them to near extinction (Warren, 2003).

Late Industrial Societies are marked by highly developed technology and by the widespread use of computers and other information technologies. Another key characteristic of our current late industrial society is the abundant use of electricity and other forms of energy, as well as high resource consumption. Modern society uses its technology and a capitalist market economy to create an environment for the maintenance for human populations that is largely buffered from the natural world, or at least apparently so. We feed ourselves and obtain other resources by participation in the economy. The disjunction between the human and natural worlds results in at least three general worldviews toward nature. First is the view that nature is primarily a resource to be exploited under the market-based system, similar to the attitudes held in early industrial societies. Second, there are many for whom nature is simply irrelevant, and so they pay little attention to it. The creation of human-altered environments and material abundance in such societies means that it is quite possible for a person to live a comfortable urban or suburban life and have almost no contact with nature. Third, the realization of a complex social and economic system which people depend upon is based

ultimately on the integrity of natural systems has led to the third view, namely valuing nature for its own sake and for its direct and indirect economic value. People are also increasingly finding spiritual meaning in wilderness, a trend that reverses the historical tendency in western culture to see nature as less and less scared (Gottlieb, 1996). Some people feel that by connecting to nature they are connecting to something larger than themselves, perhaps to divine source. Such a spiritual view may be in the future of human kind, and may indeed be key to the development of a just and sustainable global society in the future (Orr, 1994). The technological ability of late industrial societies to alter natural ecosystems and impact wildlife population is intense. The amount of nitrogen in the chemical fertilizers used by farmers around the world is now greater than the total amount of nitrogen naturally fixed by all the plants in the world (Vitousek, 1994).

The relationship between humanity and nature has changed dramatically over the last 10,000 years. As human culture changes from hunter-gatherer to agrarian to industrial, different peoples' value orientations toward nature result in the different impact on the natural ecosystems. The challenge of the 21st century will be to figure out what value orientations should people hold and how to design a sustainable global society that maintains the benefits of industrialization indefinitely into the future which allow access to those benefits for more people around the world, and still preserves environmental quality and biodiversity.

Summary

The literature suggests that: 1) A cross-cultural study of value orientations toward human-nature relationship is relevant; 2) Age, culture, and place of residence are germane variables to influence people's value orientations toward nature; 3) Values guide

people's decisions and behavior; 4) An understanding of urban youths' value orientations toward human-nature relationship is useful from an environmental education perspective.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to describe the research methodology used in exploring American and Chinese urban youths' value orientations toward human-nature relationship. The research design, subjects, instruments, procedures and data analysis will be addressed in this chapter.

Introduction

Gary Anderson has outlined ten characteristics of educational research in his book, entitled *Fundamentals of Educational Research*: a) Educational research attempts to solve a problem; b) Research involves gathering new data from primary of first-hand ffsources or using existing data for a new purpose; c) Research is based upon observable experience or empirical evidence; d) Research demands accurate observation and description; e) Research generally employs carefully designed procedures and rigorous analysis; f) Research emphasizes the development of generalizations, principles or theories that will help in understanding, prediction and/or control; g) Research requires expertise – familiarity with the field; competence in methodology; technical skill in collecting and analyzing the data; h) Research attempts to find an objective, unbiased solution to the problem and takes great pains to validate the procedure employed; i) Research is a deliberate and unhurried activity which is directional but often refines the problem and questions as the research progresses; j) Research is carefully recorded and reported to other persons interested in the problem (1998, pg. 7). This study explored the following research questions:

1. What are American and Chinese urban youths' value orientations toward the human-nature relationship?
2. What are potential differences and similarities among their value orientations that might be useful in future research regarding culture and value orientation toward the human-nature relationship?

The two main approaches for educational research are qualitative and quantitative. Qualitative research uses data which is descriptive in nature. Tools that educational researchers use in collecting qualitative data include: observations, conducting interviews, conducting document analysis, and analyzing participant products such as journals, diaries, images or blogs (Lodico, Spaulding, & Voegtle, 2010). Quantitative research uses data that is numerical and is based on the assumption that the numbers will describe a single reality. Statistics are often applied to find relationships between variables (Lodico, Spaulding, & Voegtle, 2010). A new pragmatic design called mixed methods research blends both qualitative and quantitative research paradigms to examine the major concerns of the research projects (Tashakori & Teddlie, 1998, pp.ix-x). The researcher bases the inquiry on the assumption that collecting diverse types of data best provides an understanding of a research problem (Creswell, 2009). For this study, the mixed methods were used to produce the desired data that can aid in answering the research questions. The detailed research design, which includes a drawing, writing task and simple select question, will be discussed below.

Research Design

The "human-nature relationship task" was designed using a concurrent triangulation strategy approach (Creswell, 2009). In a concurrent triangulation approach,

the researcher collects both quantitative data and quantitative data concurrently and then compares the two databases to determine if there is convergence, differences, or some combination (Creswell, 2009).

Qualitative data helps the researcher establish the meaning of a phenomenon from the views of participants (Creswell, 2009). Silverman (2000) pointed out that the goal of qualitative research is to understand human experiences and make meaning of the information provided by the participants. Hatch believed that qualitative researchers are not worried about the statistical analysis but rather "look to inductively answer research questions by examining students and others who influence them in natural contexts, in interaction with other people and objects in their surroundings" (as cited in Hittleman & Simon, 2002, p. 38).

The quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). In this study, one of the items on the "human-nature relationship task" elicited responses that can be converted into numerical data and analyzed statistically.

Instrument

The human-nature relationship task is a three-part task developed specifically for this study. First, participants were asked to draw a picture that what they think the relationship between human and nature should be. Second, participants were asked to explain their drawing. Third, participants were given a question after they finish the first and second part task. The question serves: (a) to indicate what they think the human-nature relationship should be; (b) to better understand their responses in drawing and writing; and (c) to allow the researcher conduct a quantitative data analysis. The four

options of the simple select questions are from Kluckhohn & Strodtbeck's three basic patterns of value orientations toward human-nature relationship (1961): 1) *Subordinate to nature*: individuals and groups should be prepared to submit to nature; 2) *Harmony with nature*: individuals and groups should work with nature to maintain harmony and balance; 3) *Dominant over nature*: individuals and groups have a need and responsibility to attempt to control nature; 4) if the students do not agree with any of the three options stated above, they can select other, and write in their own description.

The students' drawings were the visualized expressions or representations of their value orientations toward human-nature relationship. In light of this is a cross-cultural study, drawing gives students a voice, decreases language barriers and can provide valuable insights into their experiences (Veale, 2004; Yuen, 2004). Research has shown that drawings as representations are an active, deliberate meaning-making process and, like words, are embodied with meaning (Kress et al., 2001). It allows students who have difficulty expressing their ideas verbally or in writing an opportunity to reveal their ideas (Rennie & Jarnis, 1995). On the other hand, drawing can be uncomfortable for children who dislike drawing or who feel their drawing skills are limited (Yuen, 2004). It also can be time-consuming and a problem for researchers to interpret (Yuen, 2004). To prevent misinterpretation, researchers using this method suggest it works best in combination with other methods rather than as a sole mechanism for collecting data from children (Yuen, 2004).

Thus, the written portion allowed students to explain the drawings in their own words, and clarifies their value orientations toward the human-nature relationship for the authors. These written responses also allowed the authors to validate meanings

constructed from students' drawings. The simple select question served to test the 3 patterns of value orientations toward human-nature relationship (Kluckhohn & Strodtbeck, 1961) and allowed the research summarize the dominant urban youths' value orientations toward human-nature relationship both from an urban Minnesota and Guangzhou area.

A prototype of the human-nature relationship task was administered to a sample of 16 seventh grade students as an informal field test. The students were primarily Caucasian from an urban school in Minnesota. Based on this field test the task was modified slightly in its wording, and the third part, the select question was added. The researcher revised the first question from "Draw a picture of what you think the relationship between human and nature" to "Draw a picture of what *you* think the relationship between human and nature *should* be." The second change is about adding the third simple select question which was not in the pilot study.

Participants and Sites

Two middle schools were purposefully selected for this study. One was from the Minneapolis area of Minnesota, the second was from Guangzhou, Guangdong. The Minneapolis school is a public middle school and is located approximately 15 minutes or 8 miles west of Minneapolis. The Minneapolis school's community has a population of 50, 781 (U.S. Census Bureau, 2010) and the population density was 1, 893 persons per square mile (729.7 per square kilometer) (U.S. Census Bureau, 2010). The outdoor resources in the city around the Minneapolis school include 49 community parks, 81 miles of maintained sidewalks and trails and about 1, 000 acres of public open space. The natural scenery immediately surrounding the Minneapolis school includes mature trees,

wetlands, and prairies. The Minneapolis school has a population of approximately 913 from Grades 6 through 8. During the research project, I asked approximately 60 participants only from Grades 7 to participate and complete the human-nature relationship task.

The second school is a public middle school and located in the oldest district of Guangzhou, China. Guangzhou School's community has a population of 1,033,400 and the population density was 30574 per square kilometer. This community is surrounded by mountains and a river. Within this community, historical and cultural sites can be found everywhere. There are 88 national level historical and cultural sites, 32 provincial level historical and cultural sites, and 56 municipal level ones. Guangzhou School serves a population of approximately 600 students from Junior Grade 1 through 3. I asked approximately 60 participants only from Junior Grade 1 (same age as Grades 7) to participate and complete the human-nature relationship task. Neither school offers a specialized environmental education program in their formal instruction.

Procedures

Following approval from the University of Minnesota Institutional Review Board, the assent and consent process will were implemented with Grades 7 students from the Minneapolis school and Junior Grade 1 from Guangzhou School. The researcher emailed the instruments, parental consent forms, and assent script to each school. The teachers were in charge of distributing the parental consent forms and collecting the signatures. Also, the human-nature relationship tasks were administered by the classroom to the students during the month of January and February 2012. Students completed the task during their regular instruction time (about 15 minutes). Teachers were instructed not to

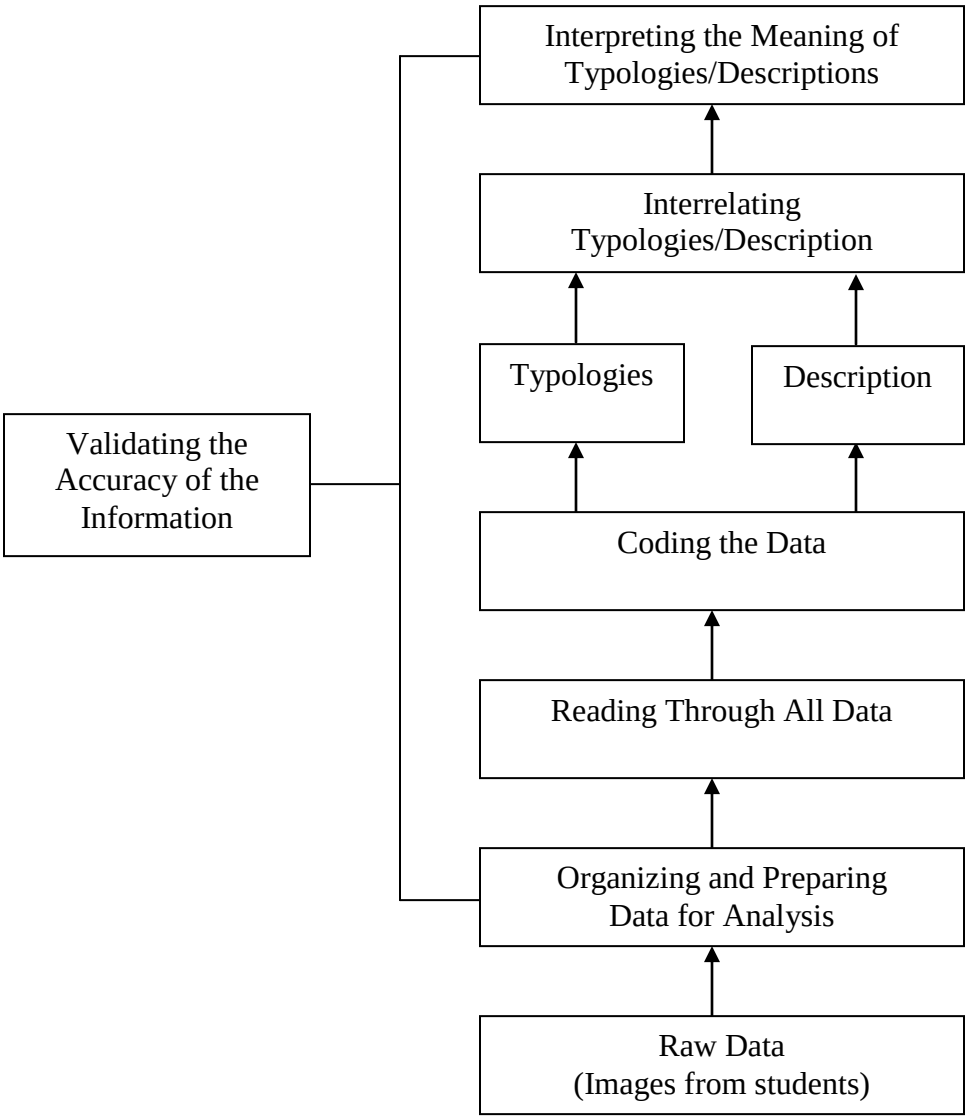
provide any formal classroom instruction regarding the human-nature relationship, nor to sway students' responses to the tasks.

Data Analysis

Data analysis involved two parts. The first part involved the qualitative data (the participants' drawn and written responses regarding their value orientations toward the human-nature relationship). This process was inductive in nature. The second part of analysis involved the quantitative analysis of the data from the third item on the human-nature relationship task. This simple select question served to test the three main value orientation patterns toward the human-nature relationship proposed by Kluckhohn & Strodtbeck (1961).

Qualitative Data Analysis Process: The drawing and writing portion of human-nature relationship task is open-ended and requires an inductive approach, as participants describe through words and drawings what was meaningful and salient to them. In order to understand participants' value orientations toward human-nature relationship, the data was analyzed using methods of inductive analysis; that is, instead of searching for pre-determined patterns, typologies were allowed to emerge from the data as the author's interpreted participants' drawings and writings of the human-nature relationship (Patton, 2002). This data analysis process is described as Figure 3 (Creswell, 2009).

Figure 3: Data Analysis Process in Qualitative Research (Creswell, 2009)



The figure suggests a linear, hierarchical approach building from the bottom to up; the various stages are interrelated and the data analysis steps that will be used for this study will be adapted as follows:

Step 1: Organize and prepare the data from two different settings for analysis. This involves scanning all the participants' drawings, typing up participants' writings,

sorting and numbering the data from the third item from each participant. Data will be coded based on the study site.

Step 2: Read through all the data to obtain a general sense of the information and to reflect on its overall meaning of participants' value orientations toward human-nature relationship. As this is a cross-cultural study, the language translation will be included in this step.

Step 3: Begin detailed analysis with a coding process. This involves taking text data and pictures gathered during data collection, segmenting sentences or images into quotes, labeling those quotes with a code, and grouping the codes into a typology.

Step 4: Use the coding process to generate a description of two different settings or people as well as typologies for analysis.

Step 5: Advance how the description and typologies will be represented in the qualitative narrative. In this study, the approach will be a detailed discussion of several typologies. The researcher will use visuals, figures, or tables as adjuncts to discussions.

Step 6: The qualitative data analysis involves making an interpretation or meaning of the data. What was learned about American and Chinese urban youth's value orientations toward human-nature relationship? What is the potential influence of culture in value orientations toward human-nature relationship, and what are similarities and differences that might be explored in future research? What are some implications for environmental education? What are some new questions need to be asked based on this study?

Quantitative Data Analysis Process: Data from question three was analyzed using descriptive statistics to compare the response distribution of the American participants

with the response distribution from the Chinese participants. In the analysis, researcher first reported information about the number of members of the sample from each site. The percentage distribution was then calculated from each site. A table of percentage distribution was used to compare the differences and similarities from each site.

Validity and Reliability

For this study, the following strategies will be employed to strength the validity of the study:

1. *Triangulation of data*-Data will be collected through multiple sources to include drawings, writings, and question;
2. *External auditor*-an international graduate student from China at the University of Minnesota Duluth will serve as external auditor.

In ensuring reliability, the researcher followed Gibbs (2007) suggestions for reliability procedures:

1. Check transcripts to make sure they do not contain obvious mistakes made during transcriptions;
2. Make sure that there is not a drift in the definition of codes, a shift in the meaning of the codes during the process of coding.

CHAPTER 4

RESULTS

Overall, 110 respondents completed the human-nature relationship instrument. Fifty-nine participants were from the Minneapolis school. These participants were in Grade 7 (13-14 years old). Fifty-one participants were from Guangzhou school. These participants were and Junior Grade 1 (13-14 years old). The purpose of this study was to use the self-developed human-nature relationship instrument to investigate participants' the value orientation toward the human-nature relationship and to explore similarities and differences among Chinese and American youth participants. The qualitative data analysis from the United States and China will be presented first, which includes the two questions to ask them what they think the human-nature relationship should be. The first question was to ask students draw a picture about what they think is the appropriate relationship between human and nature. The second question was to ask them provide a written explanation about their drawings. Then, the results of quantitative data analysis will be presented.

Qualitative Analysis on Value Orientations toward Human-Nature Relationship

The qualitative data was an opportunity to draw upon participants' personal thoughts. These qualitative data, which includes students' drawings and written responses, allow for investigating what, if any, differences there may be between the value orientations toward the human-nature relationship among American and Chinese urban youth in this study.

In this section, the researcher first reviewed students' drawings, and in doing so, noted a difference in appearance between drawings, from American students and

drawings from Chinese students. American students tended to describe the relationship with more detailed life experiences, and in particular, actions that can be used for taking care of nature, such as planting trees, watering gardens and recycling. Chinese students drew pictures that were more conceptually or philosophically oriented. Figure 4 illustrates this difference. This difference was noted across the vast majority of drawings.

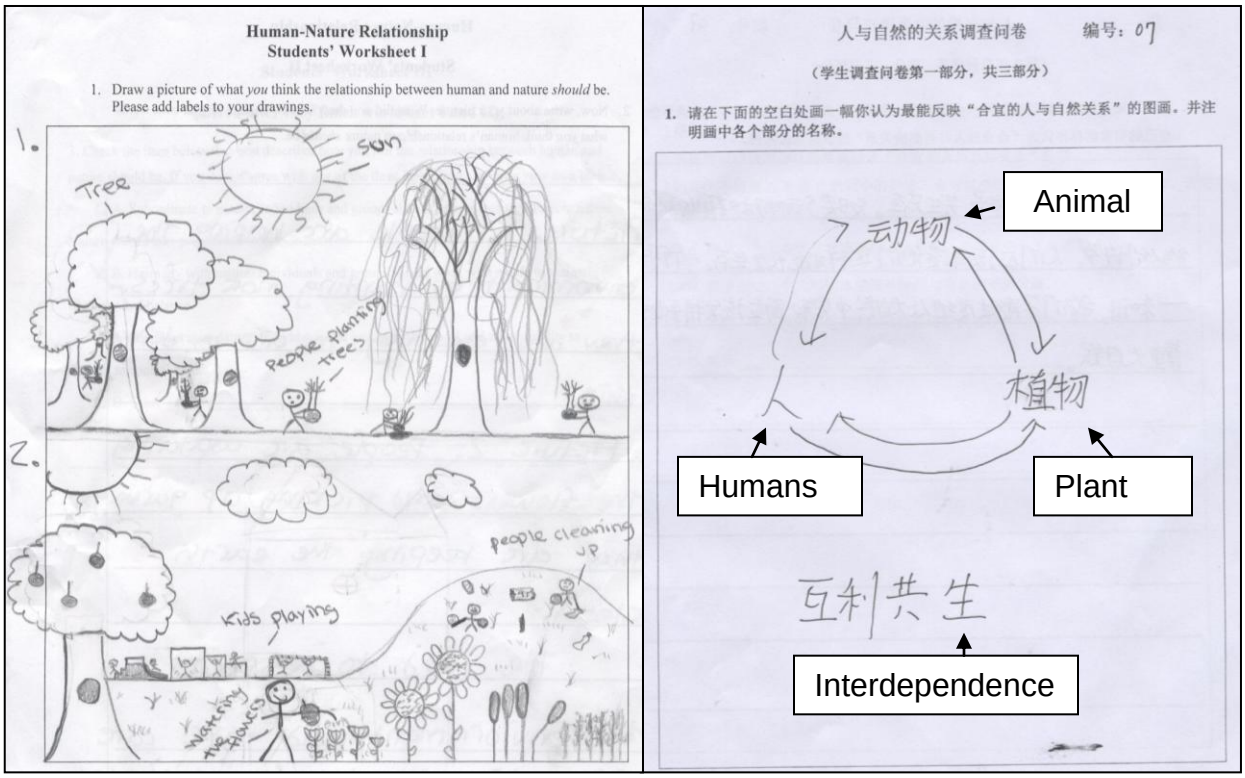


Figure 4: A Contrast of an American and a Chinese Students Drawing

The researcher then segmented their drawn and written responses into quotes. At this stage in the analysis, students' drawn and written responses could yield multiple quotes. This process yielded 47 distinct quotes. Then, a thematic analysis approach was used to group these 47 quotes into 10 codes, or 10 different ways of describing the human-nature relationship. These 10 codes were further condensed into 5 typologies

reflecting value orientations toward the human-nature relationship. Table 2 describes the results of this process.

Table 2: Relationship between typologies, codes and number of responses from the American and Chinese Youth Participants

Typologies	**Codes**	**Quotes**	**Number of responses by American participants**	**Number of responses by Chinese participants**
Submission	Humans should love nature	Hug a tree	5	1
		Think of nature as our dear friend	1	1
Interdependence	Humans and nature are interdependent	Symbiotic relationship	5	6
		Mother-son relationship	1	1
		Help each other	10	9
		Buddha, mountain and human are all in one	-	1
Stewardship	Humans should take care of/protect nature	Keep world clean	6	-
		Keep safe and healthy	2	-
		Water flower/tree	15	1
		Plant seeds/trees	14	5
		Help animals	2	1
		Pick up trash	7	-
		Volunteering	1	-
		Recycle	4	-
		Use clean energy	4	1
		Limit how much we use	4	6
		Shop locally	1	-
		Balance/Live peacefully	9	7
		Do not destroy	12	7
		Do not pollute	5	3
		Do not hunt	2	3
		Do not disturb animals	1	1

	Human should respect nature	View animals and plants same as human	4	3
		Treat nature as you do to yourself	3	-
		Animals are	9	7
		friends	3	1
		Do not dominate	2	1
		Share the same world	3	2
		Man and Nature are all God's creation	3	-
	Humans are supported by nature	Provides oxygen	9	-
		Gives food/nutrition	6	1
		Gives water	2	-
		Provides shelter	2	-
		Life	3	1
Use	Humans should use nature	Cut down trees	2	1
		Make papers	1	-
		Build houses	3	-
		Get fish/apple	3	1
		Get water	1	-
		Fresh air	1	-
	Humans should study nature	Observe nature	1	-
		View in a different way	1	-
		Teach others	1	-
	Humans should enjoy nature	Play outside	4	2
		Beauty of nature	6	3
	Humans should dominate over nature	Over power animals	2	1
		Control apple trees	1	1
	Humans are hurt by nature	Natural disaster	1	-
Dominion				

The research literature indicated that while individuals tend to exhibit a dominant orientation, they may also express sentiments reflecting other orientations (Hunter and Brehm, 2004). Thus, in tabulating the frequency of each typology, the researcher returned to students' drawings and written responses and considered the drawings together with the written responses to determine orientation (See Table 3). Consequently, while a student's drawings and written responses could yield more than one quote and code, the drawing and written responses considered together were categorized into one dominant typology (value orientation).

Table 3: Typologies of Value Orientations and frequencies by country

Typologies	**Percentage[a] Of American Participants**	**Percentage[b] Of Chinese Participants**
Submission	6.8	4.4
Interdependence	10.2	40.0
Stewardship	71.2	37.8
Use	8.5	15.6
Dominion	3.4	2.2

Note: [a]n=59; [b]n=51

Description of Typologies from Qualitative Analysis

Description of Typology 1: Submission – Human should love nature. In students drawing and written responses, they drew a person hugging a tree, admiring a garden, and their love of the earth with a heart. This typology views that human should not control over or against nature. This typology reflected 6.8% of the American student responses and 4.4% of Chinese student responses (Table 5) and is illustrated in Figure 5. The following quotations illustrate this typology.

- "The picture shows me hugging a tree showing how much humans care for the planet.
- "My picture shows a man admiring a beautiful garden."

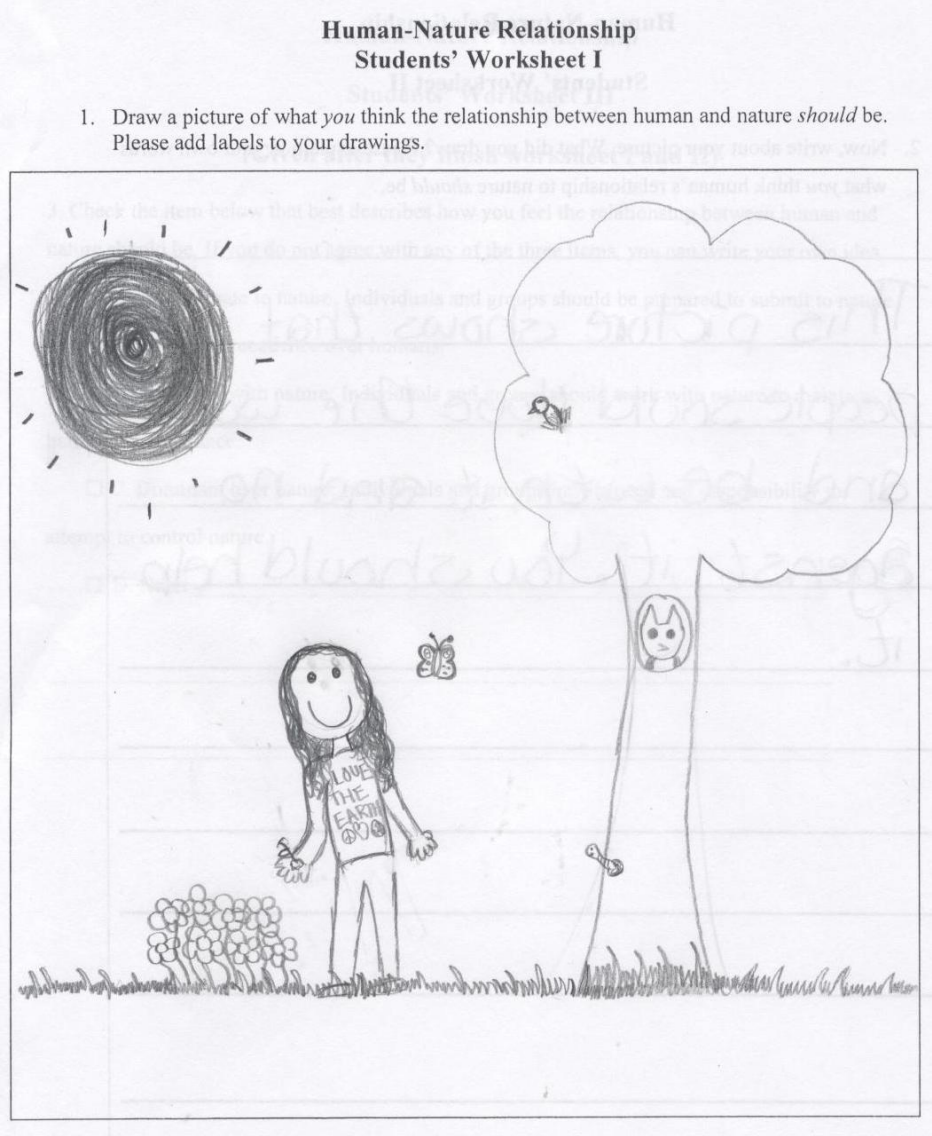


Figure 5: Example student response: Typology 1: Submission.

Description of Typology 2: Interdependence – This typology emphasizes a relation between its members such that each is mutually dependent on the others. This concept differs from a simple dependence relation, which implies that one member of the relationship can't function or survive apart from the other. This typology emphasizes the interactions between human and nature. Human and nature are interdependent. Because

nature supports human, human should help nature. In students drawing and written responses, students give an idea about that nature supports human by providing oxygen, nutrients (vitamin D), foods, water and shelter. So, human should help trees grow by giving it water and help animal by finding them food. This typology reflected 10.2% of the American student responses and 40% of Chinese student responses (Table 5) and is illustrated in Figure 6. The following quotations illustrate this typology.

- "I drew a human and a tree and that the relationship of the human and tree is the tree keeps the human alive by making oxygen and the human keeps the tree alive by giving it water."
- "I think the relationship of human and nature is that we all live in a world, 1 world, we all live in."

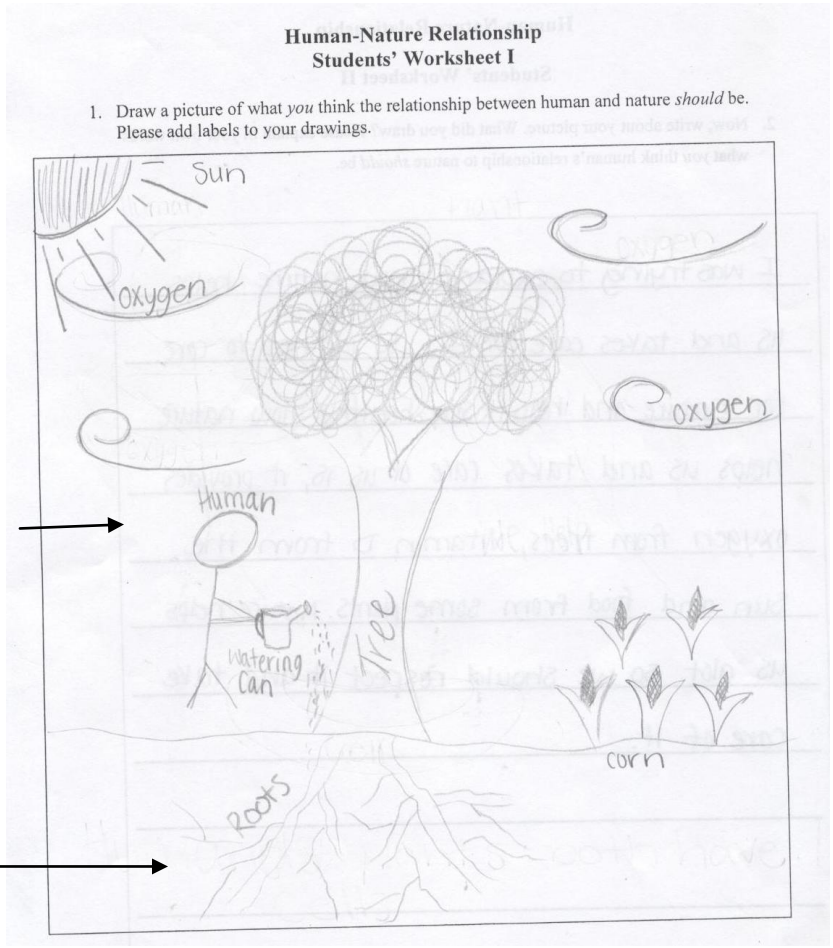


Figure 6: Example student response: Typology 2, Interdependence.

Description of Typology 3: Stewardship – This typology reflects those students' responses emphasizing humans' responsibility for taking care of and protects nature. In students' drawing and written responses, humans have the responsibility to take care of nature to maintain harmony with nature through the various of actions which include watering some flowers, picking up trash, volunteering for cleaning up, planting a tree, taking care of a garden, using solar energy and greenhouses, recycling paper and helping an injured animal. This typology reflected 71.2% of the American student responses and 37.8% of Chinese student responses (Table 5) and is illustrated in Figure 7. The following quotations illustrate this typology.

- "I drew a person planting a flower and he is picking up garbage. Humans should be respectful and take of the earth."
- "I drew a me watering some flowers. I think that this shows the relationship between humans and nature because it shows me caring for plant life and how I want the world to be a nice and clean for everything in the environment."

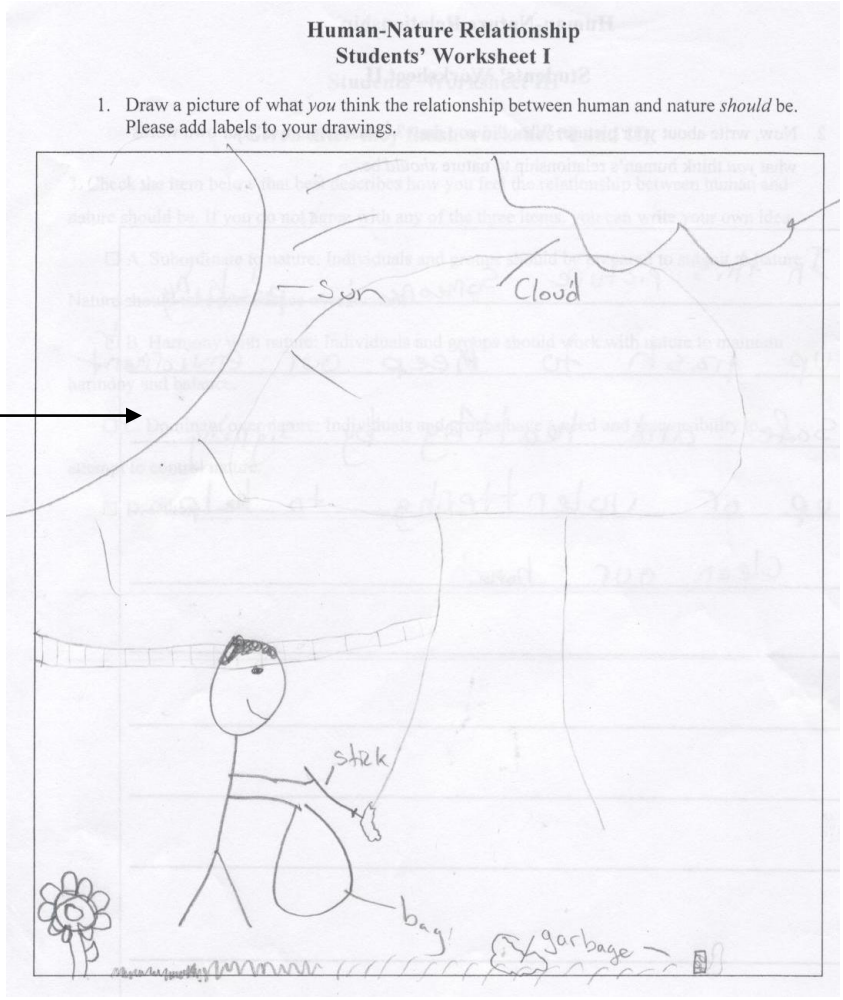


Figure 7: Example student response: Typology 3, Stewardship.

Description of Typology 4: Use–This typology emphasizes humans need nature and is supported by nature. Human should use, study, and enjoy nature. Students drawing and written responses indicated that the nature provides oxygen, gives nutrients and support life. Human can cut down trees to make papers and build houses. This typology reflected 8.5% of the American student responses and 15.6% of Chinese student responses (Table 5) and is illustrated in Figure 8. The following quotations illustrate this typology.

- "I drew trees and a human to show that we need to use nature for everyday needs, but we shouldn't hurt the animals that live there. For every tree we cut

down we should plant 3 new ones! We need to keep nature healthy so it is still useful for generations to come.

- "In my drawing, I drew a picture of a tree and kids playing outside in the leaves on a very windy day. The other kids are playing baseball. I think the human's relationship to nature should be is to enjoy the outdoors."

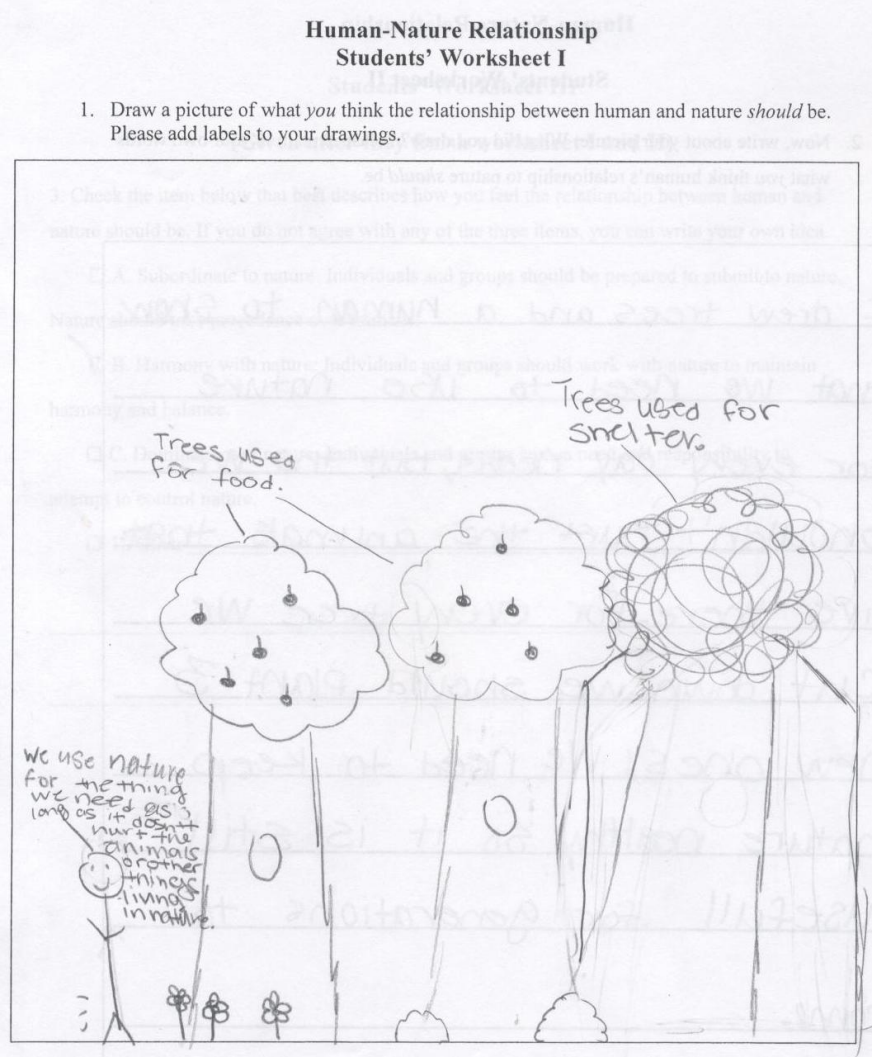


Figure 8: Example student response: Typology 4, Use.

Description of Typology 5: Dominion – Humans should control over nature to obtain what they need. This typology views that humans have power over nature to produce what they need and what they want by using tools and technology. This typology

reflected 3.4% of the American student responses and 2.2% of Chinese student responses (Table 5) and is illustrated in Figure 9. The following quotations illustrate this typology.

- "I drew a person picking apples from an apple tree. We control the apple tree by watering it and caring for it; we spray fungicide on the tree so that fungus can't grow on the tree and ruin the apples. We care for the tree so we can have fresh apples."
- "I love fishing and I know how and what to catch. I have power over the fish I catch.

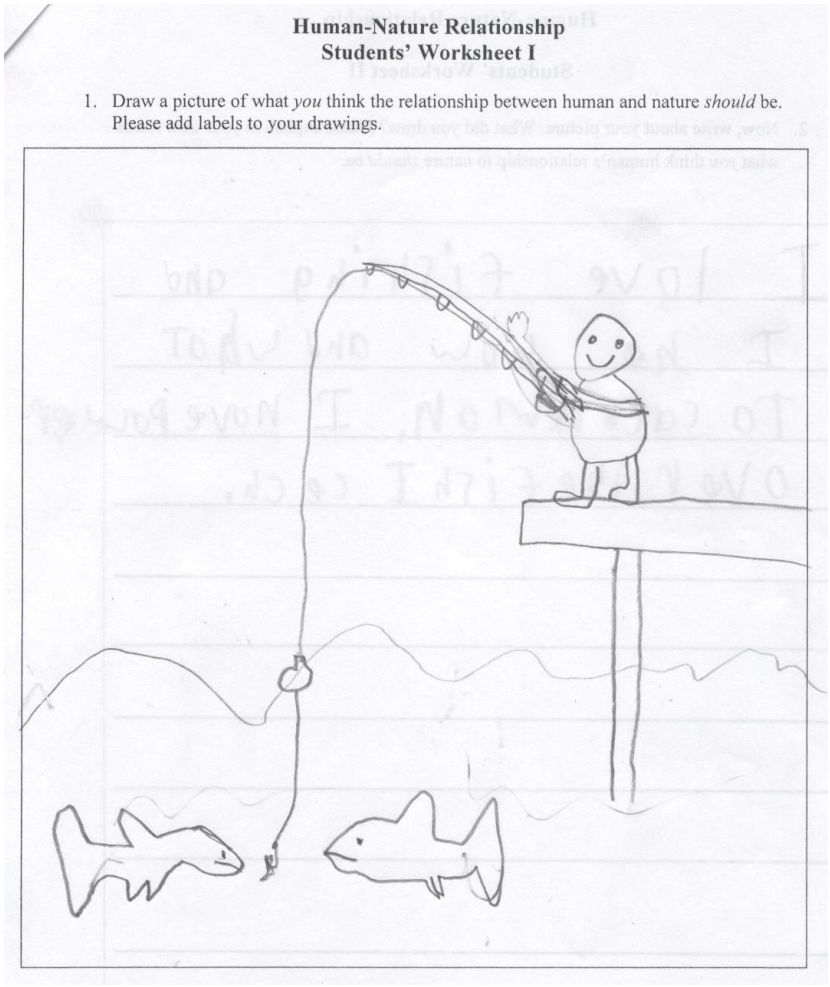


Figure 9: Example student response: Typology 5: Dominion.

Quantitative Analysis on Value Orientations toward Human-Nature Relationship

In the human-nature relationship instrument, a simple select question was asked to allow the researcher to conduct a quantitative data analysis. The four options of the

simple select question were from Kluckhohn and Strodtbeck's three basic patterns of value orientations toward the human-nature relationship (1961): 1) *Subordinate to nature*: individuals and groups should be prepared to submit to nature; 2) *Harmony with nature*: individuals and groups should work with nature to maintain harmony and balance; 3) *Dominant over nature*: individuals and groups have a need and responsibility to attempt to control nature; 4) The fourth option was for students to write their own response, if they did not agree with any of the three responses listed.

The percentage of each response by school is listed in Table 4. The results of this percentage of response distribution from the Minneapolis school and Guangzhou school are very similar. The most frequent answer from students in both schools was "harmony with nature."

Table 4: The number of responses for simple select question by school

Option	**Descriptions**	**Percentage[a] Of American Participants**	**Percentage[b] Of Chinese Participants**
Subordinate to nature	Individuals and groups should be prepared to submit to nature.	5.2	5.9
Harmony with nature	Individuals and groups should work with nature to maintain harmony and balance.	82.8	76.5
Dominion over nature	Individuals and groups have a need and responsibility to attempt to control nature.	5.2	5.9
Other	Students' own ideas	6.9	11.8

Note: [a]n=59; [b]n=51

The frequency of responses for the other categories were also similar across the two schools, thus indicating American and Chinese participants had similar value orientations toward the human-nature relationship. Regarding the category, "other", the

five responses from the Minneapolis school and the six responses from Guangzhou school are displayed in Table 5.

Table 5: List of students written responses as "other"

Students from Minneapolis School	***Researcher Assigned Category***
It needs to be balanced, but God gave us dominion over all creepy crawly things (which it says in the bible)	Dominion
Nature is what makes our world colorful, some sorts of nature give us food, others give organisms places to live	Other
Humans and nature should provide for each other.	Harmony
People should care about the earth and less about dope. Everyone should be responsible for their actions!	Other
We should submit to nature, but also take what we absolutely need. Nature helps us, so we should help nature too.	Harmony
Students from Guangzhou School	
借与还：个人和团体都需要利用自然，并有责任保护自然。 Borrow and Return: Individuals and groups need to use nature and have the responsibility to protect the natural environment.	Harmony
在主导并利用的同时去保护自然。 We should use and protect nature at the same time.	Harmony
人生存的舒服就好啦！地球早晚会毁灭的，早一点又会怎样呢？最重要的是眼下。 The most important thing is that people have a comfortable life and have benefit now. Sooner or later, the earth will be destroyed.	Dominion
尊重自然，遵从自然规律，虽然经济与自然是互相牵制的，但是也要在不牺牲自然为条件下发展绿色经济。 Human should respect to nature and comply with the laws of nature. Although economy and natural against each other's, we should develop a green economy without sacrificing the natural resources.	Harmony
应 A 与 B 共同相处，分类讨论，不同情况，不同处理，因事而异。 Should be A and B co-exist. It depends on different situations and incidents.	Other
互相尊重 Human and nature should respect to each other.	Harnomy

The responses given for "other" were re-categorized, when possible, into the existing three options, as noted in the table 5. Table 6 reflects the revised percentages, with this "other" data included.

Table 6: Responses by school for the simple select question, with the "other" responses re-categorized.

Option	Descriptions	Percentage[a] Of American Participants	Percentage[b] Of Chinese Participants
Subordinate to nature	Individuals and groups should be prepared to submit to nature.	5.1	5.9
Harmony with nature	Individuals and groups should work with nature to maintain harmony and balance.	84.7	84.3
Dominion over nature	Individuals and groups have a need and responsibility to attempt to control nature.	6.8	7.8
Other	Students' own ideas	3.4	2.0

Note: [a]n=59; [b]n=51

Validity and Reliability

To ensure the validity of this study, the strategy of triangulation of data was employed which means the data was collected through multiple sources which include drawings, writings, and simple select question. An international graduate student from China at the University of Minnesota was asked to review the transcripts and offer his opinion about the categories. His findings were remarkably similar to what the researcher had found.

In ensuring reliability, the researcher 1) checked the translated responses three times to make sure they do not contain obvious mistakes made during transcriptions; 2) ensured that there was not a drift in the definition of codes, or in the meaning of the codes during the process of coding; and 3) Cross-check codes developed by an international graduate student from China at the University of Minnesota by comparing results that are independently derived.

CHAPTER 5

DISCUSSIONS

The qualitative and quantitative data presented in the previous chapter provided relevant insights regarding American and Chinese urban youths' value orientations toward the human-nature relationship. The purpose of this chapter is to further discuss the results and the findings from this research. The author will compare the similarities and differences of value orientations toward American and Chinese urban youths. Also, the implications for the field of environmental education and recommendations for future research will be provided in this chapter.

Reflections on Results

The study aims at answering two questions: 1) What are American and Chinese urban youths' value orientations toward the human-nature relationship? 2) What are potential differences and similarities among their value orientations that might be useful in future research regarding culture and value orientation toward the human-nature relationship? Five typologies were emerged from the qualitative data analysis that explained the different value orientation toward human-nature relationship among American and Chinese urban youths. They are as follows:

- Typology 1: *Submission* – Humans should love nature.
- Typology 2: *Interdependence* – Humans and nature are interdependent.
- Typology 3: *Stewardship* – Humans should take care of/protect/respect nature.
- Typology 4: *Use* – Humans are supported by nature. Humans should use nature. Humans should study nature. Humans should enjoy nature.

- Typology 5: *Dominion* – Human should dominate nature. Humans are hurt by nature.

The above five typologies is different from Kellert's nine typologies (1996) illustrated in Table 1. Although Kellert's study provided a research foundation for value orientation toward nature, the five typologies that emerged from this study specifically address value orientation toward the human-nature relationship, which is different from value orientations toward nature.

It is important to stress that the five typologies are descriptions of students' value orientations as a whole and not of individual students. It is possible that an individual student, under a different context, might convey a different value orientation or additional value orientations. But their responses indicated that they did appear to have a dominant orientation. The five value orientations are an attempt to characterize the different value orientations students hold about the appropriate human-nature relationship and to summarize these in such a way as to inform practice and to further understanding about the similarities and differences between two different countries. Furthermore, they are meant to distinguish the varied ways in which students make sense of the human-nature relationship.

Similarities between American and Chinese Youth Participants

According to the quantitative results shown in Table 4, both American and Chinese urban youths think individuals and groups should work with nature to maintain harmony and balance. The result in Table 4 further suggest that American and Chinese youth hold very similar thoughts among the three given patterns (subordinate to nature, harmony with nature, and dominant over nature), with both groups indicating harmony

with nature most frequently and the dominion over nature least frequently. Across both qualitative and quantitative results, submission to nature and dominant over nature were less frequent value orientations among both Chinese and American youth. As the literature suggested, age (Kellert, 1996) and place of residence (urban/rural) (Zube & Pitt, 1981; Schroeder, 1983; Kaplan and Talbot, 1987) can be two factors to influence the people' value orientations. Because participants were similar in age and both in urban settings, this may help explain similarity in value orientations toward the human-nature relationship.

Differences between American and Chinese Youth Participants

The primary difference between the two groups stemmed from the qualitative data. American students indicated a stewardship value orientation toward human-nature relationship. In contrast, Chinese students more frequently indicated an interdependence value orientation. One potential explanation for this difference may be differences in educational systems. The American educational system seems to provide more opportunities for stewardship education and the Chinese educational system tends to focus more on the concept of interdependence from a philosophical point of view. From this study, one can only conjecture, but further research investigating how American and Chinese educational systems may be influencing the formation of value orientation would be useful. Also, further research regarding the cultural or spiritual influence on the value orientation would be useful, as the stewardship value orientation of American youth might reflect a Christian influence, whereas the interdependence value orientation might be reflective of Buddhism.

Secondly, throughout the coding process, the researcher noticed that Chinese students provided a less descriptive indication of how they think the human-nature relationship should be. They discussed this relationship from more of a conceptual and philosophical perspective. American students described the relationship with more detailed life experiences, and in particular, actions that can be used for taking care of nature, such as planting trees, watering gardens and recycling. Research literature showed that drawings can provide valuable insights into their experiences (Veale, 2004; Yuen, 2004). With the researcher's experience in both cultures and educational systems, it is worth noting differences in classroom size. The Chinese classroom size (usually 50 students in one classroom) is larger than American (usually 15-30 students in one classroom). Classroom size likely affects teachers' ability to bring children outside and implement the stewardship education, such as planting trees and watering gardens. Educational philosophies guiding the Chinese educational system may also explain why Chinese youth tended to draw and explain from a conceptual perspective. Additional research could further explore these differences.

Integration of Qualitative and Quantitative Data

The quantitative results suggested that most American and Chinese urban youth hold a similar value orientation toward the human-nature relationship – "harmony with nature." The qualitative data provided further explanation of students' different value orientation toward the human-nature relationship. In contrast to the three categories from the quantitative data, five typologies emerged from the qualitative data analysis: 1) Submission; 2) Interdependence; 3) Stewardship; 4) Use; 5) Dominion. The qualitative

data suggested most American youth had a stewardship value orientation toward human-nature relationship and most Chinese youth had an interdependence value orientation.

While a comparison of the qualitative result suggests Chinese and American youths have different value orientations toward human-nature relationship (interdependence in Chinese youths and stewardship in American youths), the quantitative findings suggest similar value orientation-harmony with nature. This, however, is consistent with qualitative findings as both stewardship and interdependence seem to fit with the "harmony with nature" value orientation.

Reflections on the Research Methods

In chapter three, a broad overview of the research methods was reported in this thesis. To effectively learn about the value orientations, the researcher selected the methods and designed the instrument very cautiously. In this section, the effectiveness of research methods and how the self-developed instrument used for the data collection and analysis will be discussed.

One of the research questions was to investigate the American and Chinese urban youths' value orientations toward human-nature relationship. The quantitative part is effective to determine the dominant orientation and compare the results statistically to find out the dominant orientation from two schools. The second research question was to explore the differences and similarities between two different schools. The qualitative part provided a rich source to illustrate the students' different ways of thinking. If the researcher just used the quantitative part, the five typologies and differences between the two schools would not have emerged. Drawings provided a visualized way which allowed researcher to better understand the mental pictures regarding the value

orientation toward human-nature relationship. Without the drawings, the researcher would not have been able to tell that American students tended to draw pictures with detailed descriptions, and Chinese students' drawings reflected more of a conceptual perspective. Further the drawings effectively decreased language barriers. Although drawing can be time-consuming for the researcher to interpret, it seemed to be successful in yielding rich results.

Implications for the field of Environmental Education

As stated in Chapter 1, one of the purposes for this investigation was to allow educators, curriculum developers and educational policy makers to better understand the cross-cultural perspectives of urban youths' value orientations toward the human-nature relationship and better understand the developmental tendency of their value model.

Since environmental education aims to be an educational process as opposed to advocacy, should environmental educators be teaching toward any or all value orientations? Is there a preferred or less preferred value orientation in the context of the goals of environmental education? For example, it seems environmental educators would prefer a stewardship over dominion value-orientation. Yet, it is important for environmental educators to recognize that while harmony with nature (whether an interdependence or stewardship value orientation) may be most suited toward environmental education goals, youth may not all share this value orientation as to what the human-nature relationship should be. It is also important for environmental educators to recognize that culture may shape one's value orientation. Given the increasing of diversity of students in the audiences environmental educators teach, this recognition seems to be of growing importance.

Chinese environmental educators should think about what kinds of environmental education programs need to be developed to enhance the students' personal stewardship experiences and how environmental education programs can effectively be implemented with large classroom size. On the other hand, American environmental educators might reflect more on the common practice of inclusion of stewardship activities within environmental education. If Chinese youth hold interdependence/harmony value orientations toward the human-nature relationship, in spite of lacking outdoor stewardship experiences, it seems American environmental educators may want to learn more about the Chinese approach for teaching toward interdependence/harmony value orientations, to complement existing methodologies or to use when barriers make taking students beyond the classroom difficult.

Recommendations for Future Research

The purpose of this study was to explore American and Chinese urban youths' value orientations toward human-nature relationship and compare the similarities and differences between two different countries; it was not an attempt to identify or articulate the origin or development of their value orientations. Thus, there is a need for future research to determine the role of students' experience, educational background and spiritual perspective in shaping the development of their value orientations. Although this study separated students' value orientations by country, there is a need to investigate students' value orientations by gender, age, community setting, culture, and socio-economic conditions. There also is potential for further studying difference across other cultures, as well as the influence of environmental education on value orientation and the influence of teachers' value orientation on students' value orientation. Longitudinal

studies of students' developing value orientations are also useful in determining the impact of experience, the influence of teachers and peers, education and culture on students' value orientations toward human-nature relationship. Furthermore, there is a need to understand the relationship between students' value orientations and their environmental responsible behavior and decision-making.

Conclusions

As stated in the literature, the relationship between humanity and nature has changed dramatically over the last 10,000 years. As human culture changes from hunter-gatherer to agrarian to industrial, different peoples' value orientations toward nature result in the different impact on the natural ecosystems. The challenge of the 21st century will be to figure out what value orientations should people hold and how to design a sustainable global society that maintains the benefits of industrialization indefinitely into the future which allow access to those benefits for more people around the world, and still preserves environmental quality and biodiversity.

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APPENDIX A: ASSENET SCRIPT TO BE READ BY TEACHER

(If it is permissible, my request is that this is an oral assent process, due to the minimal risk posed and due to the age range of students. All students would be read this information by their teachers, and then their choice/interest in participating is indicated by whether or not they bring home a consent form to their parents.)

"Christine, Jie Li is a graduate student at the University of Minnesota in Duluth, and she would like to ask your help with her research project. She is trying to learn more about American and Chinese urban youth's value orientations toward human-nature relationship. First, she is going to ask you draw a picture and write a brief explanation of your drawing. Then, when you finished the drawing and writing, you will do a simple select question. The questions don't have right or wrong answers; she is more interested in what you think and feel. Your drawings, writings and will help her understand more about the kids' value orientations toward human-nature relationship.

It will take about 15 minutes to finish. You'll have regular class time to do this task, and you won't miss any school work or class activities while you doing this task. Your responses won't count toward your grade in any class. Your name won't even be on your paper, and so your answers won't be connected with your name.

It is your choice if you want to help her with this research project. It's up to you. If you don't want to, that's OK. It won't change your grade, and I (your teacher) will be fine with whatever you decide. If you think you want to participate, but then later change your mind, that is also OK.

If you'd like to help her with this study, please take one of these permission forms home to your parents. If you don't want to help her with this study, then you don't need to bring a form home."

APPENDIX B: PARENET CONSENT FORM

(TO BE PRINTED ON LETTERHEAD AND SENT HOME TO PARENTS WITH STUDENTS WHO AGREE TO PARTICIPATE DURING THE ASSENT PROCESS)

DD/MM, Year

Hello Parents,

My name is Christine, Jie Li and I am a Graduate Student, studying environmental education at the University of MN Duluth. I am conducting a research project which is to explore the Value Orientations toward Human-Nature Relationship among American and Chinese urban youth. This project is part of the requirement for a Master's Degree at University of Minnesota Duluth. My advisor and thesis committee chair is Dr. Julie Ernst （jernst@d.umn.edu or 218-726-6761）.

I would like to invite your kids to participate in this research. Please read this form and ask any questions you may have before agreeing to allow your child to be in the study. Your child's teacher explained this study to your child; your child indicated an interest in participating, which is why you are receiving this letter. If you agree to allow your child to participate in the study, your child will be asked to draw a picture, write an explanation of their drawing, and answer a simple select question in the near future. It will totally take about 15 minutes to finish. Your child will have regular class time to finish these tasks, and she/he won't miss any school work or class activities while finishing the tasks. Your child's responses won't count toward his or her grade in any class. Your child's name will not be connected with his or her responses, as I am interested in looking at students overall – not how individuals in particular responded. Also, your child will be allowed to "skip" questions on the form; thus, he or she is free to answer or not answer any of the questions.

There are no foreseeable risks to your child's participation in this study. The students will not be compensated for participating. Your child's participation will ultimately benefit the profession of environmental education, as this study allows the school and

the students to contribute to and engage in society (professional activity) in a way that perhaps they normally wouldn't be able to, which will likely be published (without identifiable information and with permission of the school district) and contribute to the research base of the environmental education and further the profession.

Your child's name will not be recorded in any report published from this study, nor will the report contain information that will make it possible to identify your child. The records of this study will be kept private; data collected will be stored securely and only I, and my advisor, Dr. Julie Ernst will have access to the records.

Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect your current or future relations with the University of Minnesota, or your child's school. Your decision also will not influence your child's grade in any class. If you decide to allow your child to participate, you are free to withdraw this permission at any time without affecting those relationships.

You may ask any questions you have now or at any point in the future, please feel free to contact me at lixx1233@d.umn.edu or by phone (218-341-9060). Also, please feel free to contact with my advisor at jernst@d.umn.edu or by phone (218-726-6761) or at the address on this letterhead. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

APPENDIX C: INSTRUMENT (Human-Nature Relationship Task)

Human-Nature Relationship
Students' Worksheet I

1. Draw a picture of what *you* think the relationship between human and nature *should* be. Please add labels to your drawings.

Human-Nature Relationship

Students' Worksheet III

2. Now, write about your picture. What did you draw? Please explain in your own words what *you* think human's relationship to nature *should* be.

Human-Nature Relationship

Students' Worksheet III

(Given after they finish worksheet I and II)

3. Check the item below that best describes how you feel the relationship between human and nature should be. If you do not agree with any of the three items, you can write your own idea.

☐ A. Subordinate to nature: Individuals and groups should be prepared to submit to nature. Nature should take precedence over humans.

☐ B. Harmony with nature: Individuals and groups should work with nature to maintain harmony and balance.

☐ C. Dominant over nature: Individuals and groups have a need and responsibility to attempt to control nature.

☐ D. Other _____

_____

_____

APPENDIX D: ASSENET SCRIPT TO BE READ BY TEACHER (in Chinese)

致学生的一封项目介绍信和参与同意书
（由班主任老师阅读）

（这是一封口头的致学生的关于参与研究项目的介绍和同意书，由老师在课堂上统一阅读。学生通过该信了解这项研究的目的和内容。如果教师读完此封信后，学生同意参与并将家长签字的知情书带回，那么项目负责人则认为学生愿意参与该项目。）

“李洁是一个在美国明尼苏达大学学习环境教育的研究生。目前，她正在和她的老师进行一项研究，读这封信的时候她正需要你的帮助来完成一个研究项目。这个项目的目的在于了解目前中国和美国生活在都市的青年人是如何看待人与自然的关系。”

如何参与这项研究呢？首先，她会请你画一幅画并用你自己的语言写下你对这幅画的解释。当你完成后，还有一个简短的问题需要你回答。问题并没有对错之分，她只是需要你的真实想法。你的绘画和解释将帮助她更好地了解你对人与自然关系的态度和价值观。这里要说明的是，你的参与将会对于这项研究的完成起到非常重要的作用。

这个调查将会占用你 15 分钟的时间，会在学校课堂内完成，不会耽误其他的活动时间。你的反馈也不会影响你在学校的表现和成绩。而且，这份调查问卷采用匿名的方式， 即不记录姓名。

是否参与这个项目也是自愿的。你同意或者不同意参加这个研究项目都取决于你自己的决定。我，作为你的老师不会干涉你的决定，而且你的决定也不会影响我对你的看法。

如果你愿意帮助她完成这项研究，我想请你将这份家长知情书带回家，并请你的家长阅读签字后带回学校交给我。

APPENDIX E: PARENTAL CONSENT FORM (in Chinese)

家长同意书

（请打印在印有学校抬头的信纸，并请愿意参与调查的学生带回给家长。）

尊敬的学生家长，

您好！我的名字是李洁，目前正在美国的明尼苏达大学攻读教育学硕士。最近，我和我的导师朱莉恩斯特博士正在进行一个“中国和美国都市青年对于人与自然关系的价值取向”的跨文化研究。这项研究的目的是从跨文化和跨区域的视角来探寻当代年轻人对于人与自然之间关系的价值取向，同时，了解不同的文化背景对于这个价值取向的影响。研究成果将对中美两国的环境教育工作提供有价值的参考。

本研究由广州地区的一所中学和美国明尼苏达双城地区的一所中学共同参与完成。您孩子所在学校作为广州地区的代表已经加入到这项研究中，我写这封信的目的是向您介绍这个项目，同时希望您作为家长同意您的孩子参与这个研究项目。

请您详细地阅读此信，如有任何问题请向我及时提出。关于您的孩子将如何参与，首先我会做一个说明。您孩子的班主任已经在课堂上介绍过这个项目，他/她本人表示愿意参与这个研究，在这样的前提下您才会收到这封信。那么，您的孩子将如何参与呢？您的孩子将会针对“人与自然的关系”这一主题画一幅画，写一小段对图画内容的文字说明，并回答一个简单的问题，总共用时 15 分钟。所有的内容都将在学校完成，不会耽误孩子上课或其他活动。而且，所有的内容都是采用匿名的方式，我们不会按照每个孩子的反馈进行打分，这项调查也和学校的平时成绩不挂钩。您的 孩子有权选择参与或者不参与，或者只回答其中的一部分问题。

对于您的孩子，这项研究不存在任何可预见的危险。您的孩子也不会被强迫参与。重要的是，您孩子的参与将会对推动环境教育领域的研究起到极为重要的作用，而且这个项目对于在校的学生来说是个难得的机会参与到最前沿的科学研究。您子女的名字将不会被记录在将来发表的学术报告里，也不会有任何的个人信息涉及您子女。

如果您不同意您的孩子参加这个研究，这个决定也不会影响到您孩子和学校老师以及其与美国明尼苏达大学的关系。您可以完全根据个人意愿进行选择。如果关于这项研究有任何疑问，请随时和我联系。

联系方式：
联系人： 李洁
电话： +1-218-341-9060

同意声明：

我已经阅读以上内容并同意我的孩子参与这个项目。

签名:_____ 日期: _____

APPENDIX F: INSTRUMENT (in Chinese)

人与自然的关系

（学生调查问卷第一部分）

1. 请在下面的空白处画一幅你认为最能反映“合宜的人与自然关系”的图画。并注明你画中各个部分的名称。

人与自然的关系

（学生调查问卷第二部分）

2. 现在，请为你的图画写一小段说明。你画了什么？反映哪些内容？并请用你自己的语言解释你认为“合宜的人与自然的关系”应该是怎么样的。

人与自然的关系

（学生调查问卷第三部分）

(此部分内容请在学生在完成第一和第二部分之后给出)

3. 选择题

在下列选项中选出你认为最能描述“合宜的人与自然关系”选项。

（如果你不同意 A, B 和 C 选项中的描述，你可以在选项 D 中写出你自己的答案。请用一句话概括。）

☐ A. 服从：个人和团体都应该顺从大自然。自然优先于人类的需求。

☐ B. 和谐相处：个人和团体应随时保持与自然的平衡发展。

☐ C. 掌控：个人和团体都有需求和责任去尝试主导并利用大自然。

☐ D. 其他 _____

_____

_____